

Fig. 1A

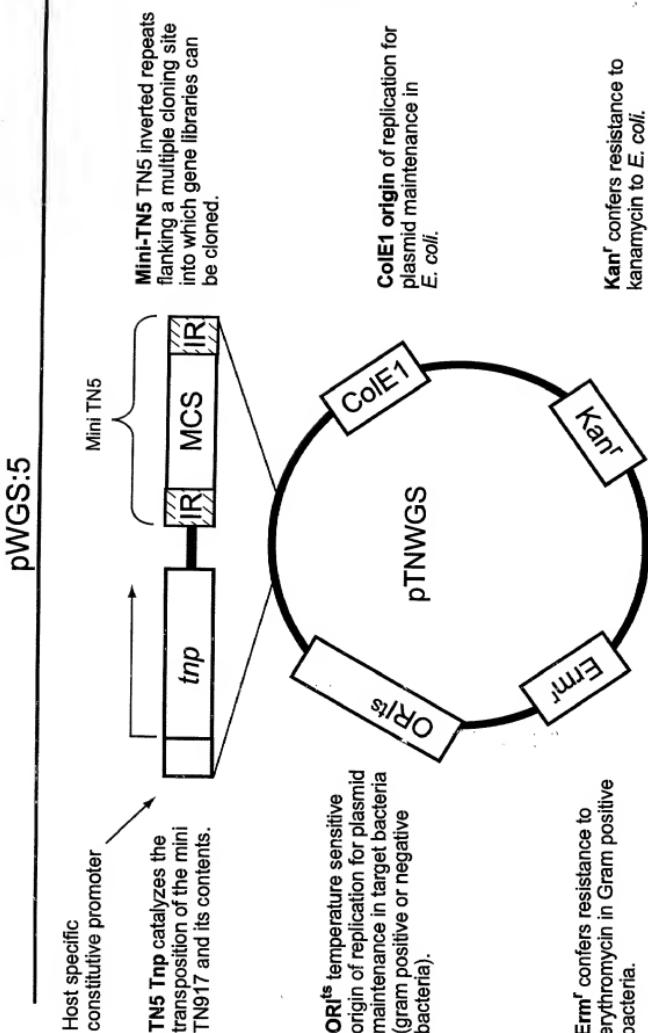


Fig. 1B

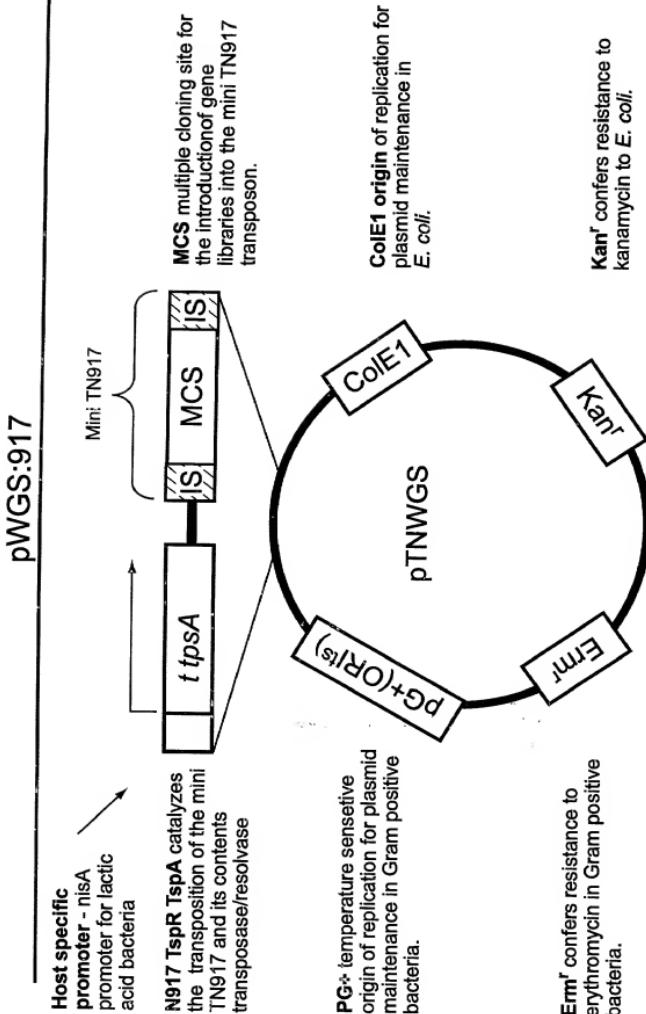


Fig. 1C

Efficient integration into mammalian cells using evolved *Mariner* transposons

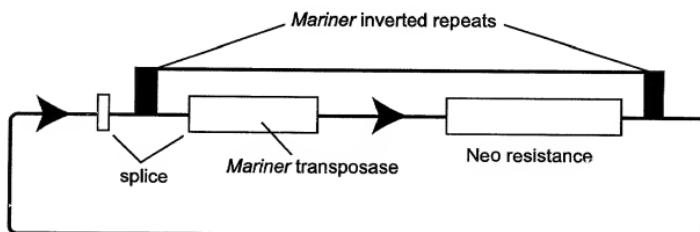


Fig. 2A

*Mariner* transposons for inserting loxP sites at loci with desirable expression properties

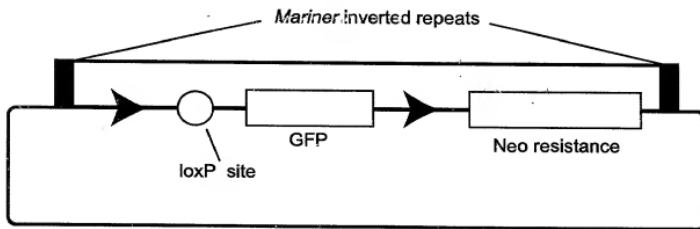


Fig. 2B

## Methodology for Isolating Hosts with improved Phenotypes by Whole Genome Shuffling (WGS)

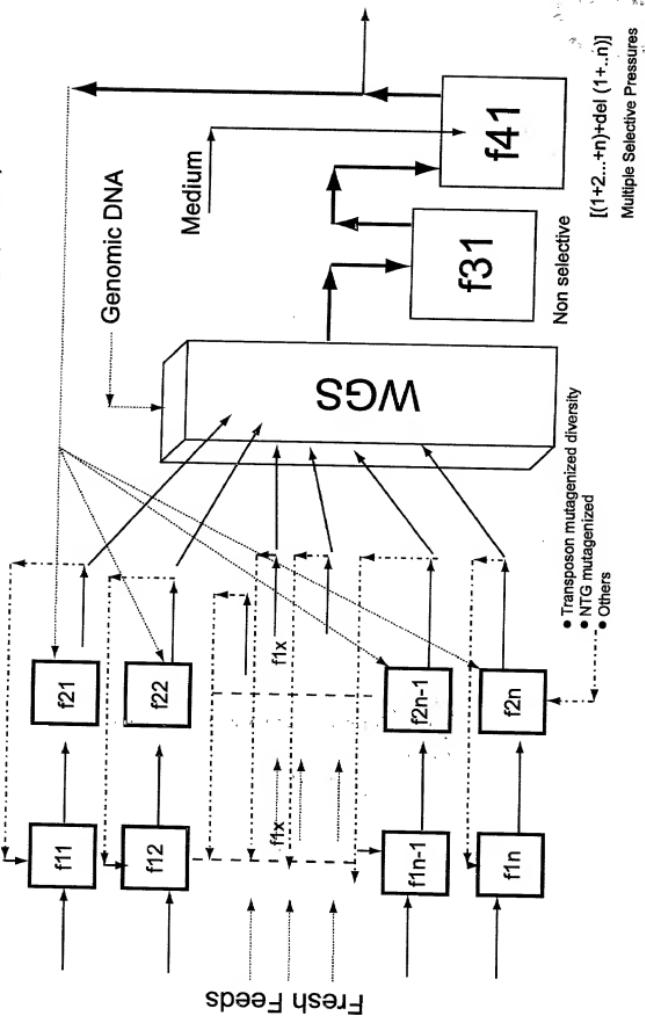


Fig. 3

## Shuffling of Genomes *In Vitro*: Formation of transposomes

### sources of genomic diversity

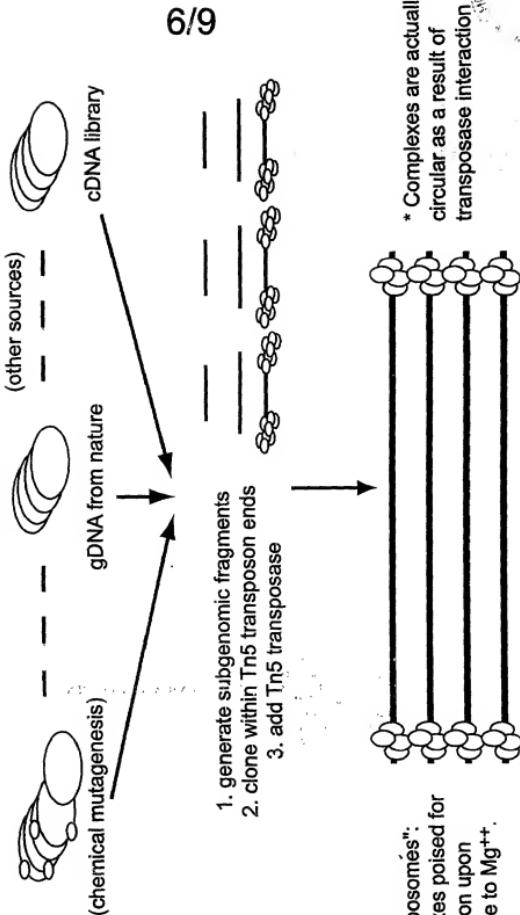


Fig. 4A

Shuffling of Genomes *In Vitro*:  
 Breeding multiple donor genomes with a single acceptor genome

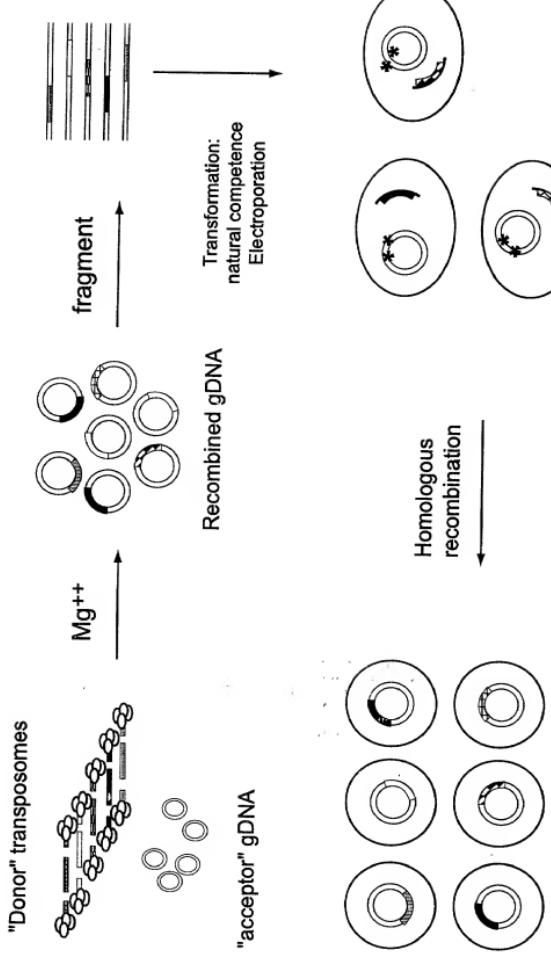
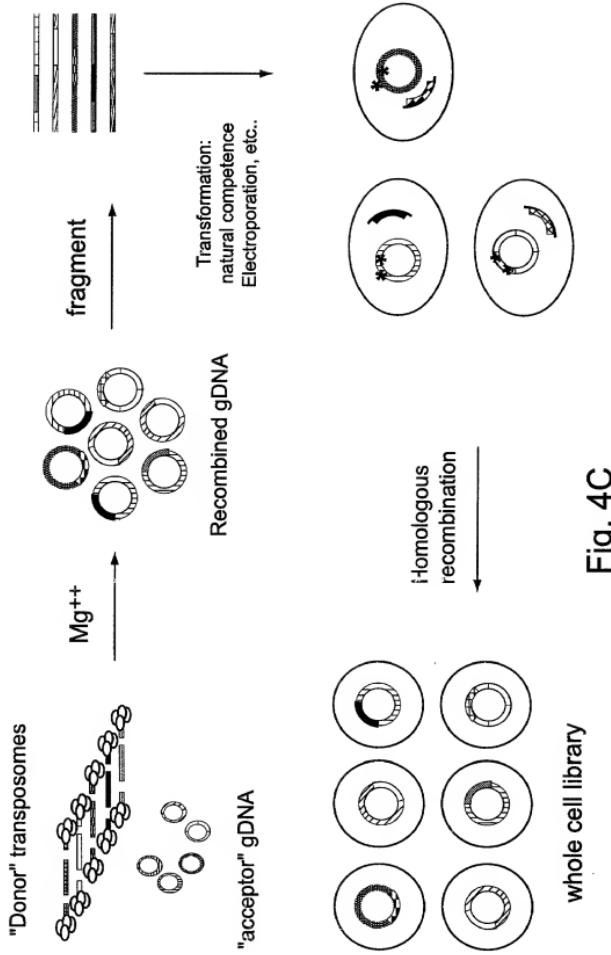


Fig. 4B

## Shuffling of Genomes *In Vitro*:

Breeding multiple donor genomes with multiple acceptor genome



Shuffling of Genomes *In Vitro*:  
 Split pool recursive *in vitro* recombination of multiple genomes

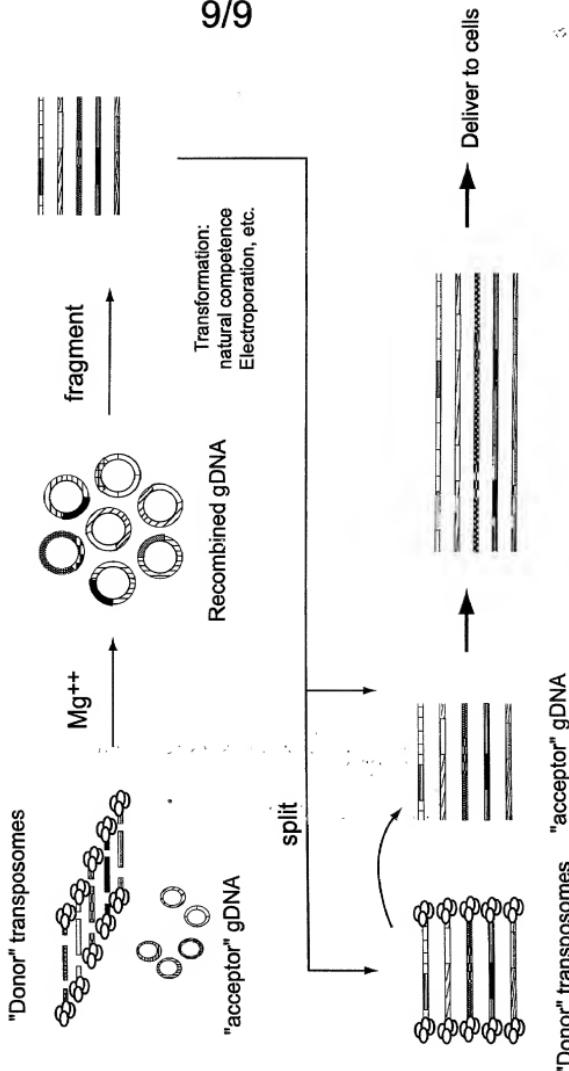


Fig. 4D